

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/051020

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B08B3/12

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B08B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 834 871 A (PUSKAS WILLIAM L) 10 November 1998 (1998-11-10) column 9, line 65 - column 11, line 24 column 6, line 51 - line 61 abstract; figures 1,3	1-10,12, 13
A	US 5 681 396 A (MADANSHETTY SAMEER I) 28 October 1997 (1997-10-28) column 2, line 11 - column 3, line 9	1-13
A	US 5 762 084 A (RYLE LYNN S ET AL) 9 June 1998 (1998-06-09) column 4, line 47 - line 65; figure 2	1-13
A	US 2002/108631 A1 (MADANSHETTY SAMEER I) 15 August 2002 (2002-08-15) the whole document	1-13
	-/--	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"Z" document member of the same patent family

Date of the actual completion of the international search

12 October 2004

Date of mailing of the international search report

18. 02. 2005

Name and mailing address of the ISA

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## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/EP2004/051020

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 88/04582 A (EASTMAN KODAK CO) 30 June 1988 (1988-06-30) the whole document -----	1-13

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP2004/051020

### Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-13

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-13

Diagnosis of parameters for activation of transducer assembly and use of transducer assembly to remove a particle on a surface  
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2. claims: 14-25

Manipulation of transducer to generate a specific configuration of acoustic cavities in a container  
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3. claims: 26-31

Manipulation of concentration of cavity enhancement liquid to generate a specific density of cavities upon activation of transducers  
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4. claims: 32-40

Comparison of time averaged distribution of cavities against reference value to determine acceptability of performance of array of transducers  
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5. claims: 41-49

Generation of a first and second energy pulse resulting from collapse of acoustic cavity  
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6. claims: 50-63

Removal of particle from a surface by liquid cavitation whilst the surface is moved respective to a selected liquid  
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## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/051020

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
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			TW	407066 B	01-10-2000
			US	6181051 B1	30-01-2001
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US 5762084	A	09-06-1998	NONE		
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WO 8804582	A	30-06-1988	CN	87101160 A	29-06-1988
			WO	8804582 A1	30-06-1988